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LEARNING FOR HELP: PHYSICIANS' STRATEGIES FOR SUPPLEMENTING
EXPERIENCE WITH CHALLENGING PROBLEMS.

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Primary Care Physicians' Information Seeking Strategies
for Solving Undiagnosed Problems and Implications for Information Dissemination

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The purpose of the present study was to examine whether physicians in primary care internal medicine and family practice differed in the strategies they used to supplement their knowledge when confronted by a challenging problem. Information seeking strategies can be conceptualized as the underlying priorities physicians place on various characteristics of information sources, such as informativeness, availability, ease of use, and educational value. Because information sources vary widely on these dimensions, the differences in physician strategies will produce differences in information seeking behavior patterns. The information-seeking strategy a physician uses to solve a challenging problem has implications for his or her own practice, but is also relevant to the larger issue of the dissemination of medical innovations.

A survey was administered to 98 internists and 73 family practitioners who were asked to the first and second information sources they would use when faced with a difficult medical problem for which they are uncertain of the answer. Six information sources were given: medical journals, textbooks, informal discussion with a colleague, consultation with a specialist in your community, consultation with a specialist in another community, and transfer the patient to another physician. The data were analyzed as conditional choice pathways through the possible information choices.

In looking at the information source sequences, a reasonably consistent overall pattern emerges in which the initial information source choice is either textbooks or journals, followed by informal consultations with colleagues, consultations with community specialists, then consultations with outside specialists, and finally transfer of the patient. Within this overall composite sequence of information source selection, there are differences between internists and family practitioners in the specific choices they make. Internists are more likely to start with textbooks or journals than are family practitioners. Family practitioners, in fact, rarely consult journals at any step in their choice sequences. Instead, they prefer informal consultations with colleagues and select these more often than do the internists.

These results suggest that there are a variety of information seeking strategies that primary care physicians use in trying to solve a clinical problem. There are also some apparent differences in the styles of family practitioners and internists; family practitioners tend to utilize colleagues as information sources while internists tend to refer to textbooks and journals. These differences suggest that information dissemination may be more effective if journals or textbooks are utilized for internists, and family practitioners work with "educationally influential" physicians or continue to use the consultation process. Planners of CME information dissemination should take into account the various sources of information that physicians use when attempting to communicate advances to practicing physicians.

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Looking For Help: Physicians' Strategies For Supplementing
Knowledge When Confronting Challenging Problems

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Objectives

The present study examined the strategies that primary care physicians use to supplement their knowledge when confronted by a problem that they are unable to solve. Of interest are 1) the sequences in which physicians state they access different information sources, 2) the variability among these physicians in information search patterns, 3) the relative frequency at which the various information choice sequences are used, 4) the existence of any differences in information seeking between primary care physicians in internal medicine and family practice, and 5) any relationships between information seeking strategies and preferences for Continuing Medical Education formats. The purpose was to determine the implications of information gathering strategies for tailoring CME courses for various groups of physicians.

Perspective

Medical problem solving requires a physician to integrate the data from a patient's symptoms and laboratory investigations with his/her own base of knowledge about diseases in order to arrive at a diagnosis or treatment plan. Often, this process proceeds smoothly on the basis of the physician's existing knowledge, but there are many times when the physician's knowledge needs to be supplemented by information from outside sources. These sources may include colleagues, journals or textbooks, specialists, and medical libraries, among others. It seems likely that gathering this supplemental information is guided by strategies, that is, identifiable routines and preferences in the physician's referral to various sources of information. For example, some physician's may prefer to ask colleagues for additional information while others may refer to journals, while yet others will tend to refer the patient to a specialist. One important source of information that has been indicated by prior research are "educationally influential" community physicians. These individuals are generally better informed about new medical advances and highly valued by their colleagues as sources of advice about diagnosis and treatment (Weinberg, et al., 1981; Stross and Bole, 1979a,b; Stross, et al., 1983; Maxwell, Bashook, and Sandlow, 1984). Because this information source is available, informative, inexpensive, and problem-oriented, it is likely that it is an important avenue for increasing knowledge and skills for community physicians.

Differences in gathering supplemental information are likely to have implications for both formal and informal physician self-education. There is, however, little empirical data regarding the differences in information seeking strategies and their relative frequency of use by physicians. It is not known how physicians perceive the relative value of these resources, in what sequences they access them, or whether physicians in differing specialties have different views and utilization of the various information sources. Learning more about how and where physicians actually seek information in practice has implications for tailoring CME to the needs and styles of physicians and for augmenting effective diffusion of medical innovation (Murray-Lyon, 1977).

Methods

The survey instrument used in the present study was designed to collect demographic data, specialty, board certification status, preferences for various CME activities, and information on CME attendance in the past year. Participants were then asked, "When faced with a difficult medical problem for which you are uncertain of the answer, which of the following information sources would you use first?" This was followed by six information sources: medical journals, textbooks, informal discussion with a colleague, consultation with a specialist in your community, consultation with a specialist in another community, and transfer the patient to another physician. The physician was asked to select one of these and then indicate on a seven-point scale how often this information source typically gives the answer needed. The physician was then asked to indicate the information source he or she would select if the first failed to provide the answer, and how often this information source gives the answer.

Internists and family practitioners were compared on the basis of the relative frequency at which each group identified as a first choice the different information sources. Second, the distributions of family practitioners and internists were compared over the various information seeking sequences, portrayed as a series of choice pathways. Finally, physicians were classified into groups corresponding to the more common information choice sequences and were then compared on level of experience, past CME activities, and the value placed on various sources of CME. This analysis indicated the extent to which stylistic differences in information acquisition strategies are reflected in CME attitudes and activities.

Data source

Survey responses were obtained from 171 participants in four continuing education courses in family practice or internal medicine at the University of Michigan Medical Center. Of these, 73 participants were classified as family practitioners and 98 as internists based on the criterion of spending at least 75% of their time in one or the other specialty.

Results and conclusions

The distributions of family practitioners and internists in their choices of information sources were significantly different (chi square=18.17, $p<.003$). The major first choices for the family practitioners are quite even divided among informal discussions with colleagues (33%), consultations with community specialists (32%), and textbooks (27%) (see Figure 1). Journals (4%) and consultations with outside specialists (2%) were rarely selected. A large percentage of internists selected textbooks (49%), followed by consultations with community specialists (20%), informal discussions with colleagues (14%), and journals (12%). The primary differences between internists and family practitioners was in the use of textbooks (internists 48% vs. family practitioners 27%); journals (internists 12% vs. family practitioners 4%), informal consultations with colleagues (internists 14% vs. family practitioners 33%); and consultations with specialists in their communities (internists 20% vs. family practitioners 32%).

Comparisons between internists and family practitioners on the sequences of their first and second choices revealed some differences, primarily in the utilization of journals vs. consultations (see Figures 2 and 3). For those physicians selecting textbooks as a first choice, 55% of the family practitioners selected informal consultations with colleagues second compared to 27% of the internists. In contrast, 27% of the internists selected journals after textbooks while none of the family practitioners did. For those selecting consultations with community specialists first, more family practitioners went on to confer with outside specialists (61%) than did internists (35%). Again, the internists tended to select journals as a second choice (30%) more often than did family practitioners (9%).

Availability is a conceptual dimension that helps explain some of the differences observed between internists and family practitioners. There are fewer textbooks and journals devoted to family practice than to internal medicine; therefore it is not surprising that internists select textbooks and journals earlier and more frequently than do family practitioners. To compensate, family practitioners more quickly consult with colleagues or specialists which may be more available than textbooks or journals.

The physicians' evaluations of CME activities vary with the initial information selection. When the physicians were grouped according to the information source selected and then compared on their ratings of the value of various CME activities in meeting their educational needs, three of the eight CME sources listed produced significant differences in their rated value (journals ($F = 2.87$, $p<.05$), textbooks ($F = 4.98$, $p<.01$), and informal consults with colleagues ($F = 3.81$, $p<.01$); but not formal short courses, in hospital programs, pharmaceutical representatives, audio-visuals, and correspondence courses (Table 1)). Those physicians initially selecting informal discussions with colleagues gave higher ratings to informal consults with colleagues ($\bar{x}=5.6$) than did physicians initially selecting either journals (3.8), textbooks (4.7), or consultations with community specialists (4.5). These physicians also give higher ratings than all other choice groups to the value of journals (5.4), and to a lesser extent, valued textbooks more highly than did physicians selecting consultations with community specialists (4.4 vs. 3.5). It is not surprising that those physicians who rely on consultations with colleagues for help in facing a challenging problem would also value informal consultations as a CME source. It is not as clear why these physicians should place a value on journals as CME sources that is even higher than the rating of those physicians whose first choice of an information source is journals. It may be that those who seek help from colleagues in dealing with a challenging problem either do not have journals and textbooks available, or have different standards

for judging the value of an information source in the two different contexts of CME and solving immediate problems.

Physicians choosing textbooks as their first information source, not surprisingly, gave higher ratings to textbooks as a CME source (4.9) than did those selecting journal (3.8) or consultations with community specialists (3.5). This may indicate that those who use textbooks view them as rather comprehensive sources of information, both for solving immediate problems and for longer-term education.

The results of this research must be considered in light of some limitations on the data. One such caveat is the sampling of physicians participating in formal CME courses at an academic medical center. The particular characteristics of these physicians may lead to information search strategies that differ from physicians who utilize other CME sources. Another limitation is the fact that there was no data obtained regarding the size of the physicians' community. Some prior research (Moore-West, et al., 1984) has suggested that physicians from less populated areas tend to more often select colleagues as the primary source of information with textbooks secondary, and rarely utilize journals. Physicians in more populous areas tend to refer to journals first.

Scientific and educational implications

The information-seeking strategy a physician uses to solve a challenging problem has implications for his or her own practice but it is also relevant to the larger issue of the dissemination of medical innovations. The effective dissemination of medical innovations, such as new diagnostic tests or therapies, cannot take place without consideration of the ways physicians seek answers to ill-defined diagnostic and treatment problems (Weinberg, et al., 1981; Lockyer, et al., 1984). Publication of new information in journals, for example, will be of limited utility if practicing physicians do not read these journals. Likewise, traditional continuing medical education courses may not be the most effective means of communication if the physician does not attend or see the implications of the course content to his or her own practice.

The results of this study indicate that there are a variety of information seeking strategies that primary care physicians use in trying to solve a challenging clinical problem. There are also some apparent differences in the styles of family practitioners and internists; family practitioners tend to utilize colleagues as information sources while internists tend to refer to textbooks and journals. These differences imply that the diffusion of medical innovation and the targeting of CME should take into account the various sources of information that physicians use when attempting to communicate advances to practicing physicians. These results suggest that internists may be effectively served by way of journals or textbooks, while family practitioners may be better reached through educationally influential, highly respected community physicians.

References

- Lockyer, Jocelyn, Parboosingh, John, McDougall, Gerald, and Chugh, Urmil. Physician adoption of new clinical investigations: A study of the information sources utilized during the decision making process. Proceedings of the 1984 Annual Conference of Research in Medical Education, Washington, D.C. Pp. 225-230.
- Maxwell, Joseph A., Bashook, Philip G., and Sandlow, Leslie J. The role of communication networks in physicians' adoption of innovations. Proceedings of the 1984 Annual Conference of Research in Medical Education, Washington, D.C. Pp. 231-236.
- Moore-West, Maggi, Northrup, Diana, Skipper, Betty, & Teaf, Dusty. Information-seeking behavior among physicians practicing in urban and nonurban areas. Proceedings of the 1984 Annual Conference of Research in Medical Education, Washington, D.C.

- Murray-Lyon, N. Communication in medicine: a study of how family doctors obtain information on recent advances in the treatment of rheumatic diseases. Med. Educ., 1977, 11, 95-102.
- Northrup, Diana E., Moore-West, Margaret, Skipper, Betty, & Teaf, Sallie R. Characteristics of clinical information searching: Investigation using critical incident technique. J. Med. Educ., 1983, 58, 873-881.
- Stross, J. K., and Bole, G. G. Continuing education in rheumatoid arthritis for the primary care physician. Arthritis and Rheumatism, 1979, 22: 787-791.
- Stross, J. K., and Bole, G. G. Evaluation of a continuing education program in rheumatoid arthritis. Arthritis and Rheumatism, 1979, 23: 846-849.
- Stross, J. K., Hiss, R. G., Watts, C. M., Davis, W. K., and MacDonald, R. Continuing education in pulmonary disease for primary care physicians. Am. Rev. of Respiratory Dis., 1983, 127: 739-746.
- Weinberg, A. D., Ullian, L., Richards, W. D., and Cooper, P. Informal advice- and information-seeking between physicians. J. Med. Educ., 1981, 56: 174-180.